

单次单道电刺激脑电模式识别方法研究

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摘要：

本文研究了一种人体在感受电流刺激条件下的脑电模式识别算法。该方法对于单次电流刺激，根据对单通道脑电信号的分析处理，即可对受试者是否感觉到该刺激做出判断。与传统诱发电位提取所用的平均叠加滤波法相比，避免了人体对重复刺激的疲劳效应。实验结果表明，该方法可用于人体电流感觉阈值的测量，由于不需要受试者做出任何主观反应，与以往技术相比，在保持无创检测的同时，测量过程更为客观，具有良好的临床应用前景。

关键词：脑电 模式识别 感觉阈值 电流刺激 支持向量机

Recognition of Current Perception Based on Single-trial Single-channel EEG Analysis

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Abstract:

A method to recognize the EEG pattern after a current stimulus applied on the human body was studied. Based on this method, it could be judged whether the subject percept the current stimulus by analyzing single-trial, single-channel EEG signal. In comparison with conventional average filter method for evoked potential extraction, this novel method avoids the feeling adaptation of the subject caused by repeated stimuli. Experimental results showed that this method can be utilized for human current perception threshold testing. Being a non-invasive method as well, the new method is much more objective than previous methods reported because no subjective reaction from the subject is needed, so that it has prospective clinic applications.

Keywords: EEG; Pattern Recognition; Sensory Threshold; Current Stimulus; SVM

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